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# SCIENCE

A WEEKLY JOURNAL DEVOTED TO THE ADVANCEMENT OF SCIENCE, PUBLISHING THE  
OFFICIAL NOTICES AND PROCEEDINGS OF THE AMERICAN ASSOCIATION  
FOR THE ADVANCEMENT OF SCIENCE.

FRIDAY, JANUARY 15, 1904.

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## THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

### PROCEEDINGS OF THE ST. LOUIS MEETING.

THE fifty-third annual meeting of the American Association for the Advancement of Science was held in St. Louis, December 26, 1903, to January 1, 1904. This was the second time the association had met in St. Louis, the first being the twenty-seventh meeting in 1878. The association has met west of the Mississippi but six times.

The number of members in attendance was 385, while the number in the affiliated societies was 81, making a total attendance of 466. This places the meeting fifth in point of numbers of those held during the last ten years. As the total membership has rapidly increased in this time, this would seem to be a small meeting, but there are various reasons to account for it. The first and strongest of them is that the exposition will be held in St. Louis next summer and a large number of the members expect to visit the city at that time. Hence they did not feel like going to St. Louis in the winter, notwithstanding their strong desire to attend the meeting of the association.

Although the meeting was small in point of numbers, it was large in point of papers and earnest work in the section room. Many of the sections were very largely attended and had so many papers that they could not complete them during the regular time assigned. Several evening meetings were held, and at least two of the sections held meetings after the final adjournment of the association. This shows that the

meeting was what might be called a working meeting. Those who had papers to present were there and took active part in the proceedings. It was unfortunate that a larger number could not have been present, but any meeting at which a large number of papers is presented, and where a strong and vital interest is taken in the work of the section room must be called a successful one.

Perhaps the second reason why the attendance was small was in the fact that the policy of the association, which calls for working meetings, does not meet hearty support from all of the members. There is still some discussion going on as to whether it would be better to have a summer meeting or a winter meeting, or perhaps both. Some of the older members do not feel like traveling long distances during the winter and subjecting themselves to the changes of temperature and other discomforts which come from winter travel. In some cases it is not possible for college professors to get away from their institutions during the week of the meeting, and still others do not like to leave their families during the holiday vacation. On the other hand, the majority of those present seemed to feel that it was best to continue the present method, for a time at least. There was no open opposition to the winter sessions, and when the vote was taken in the general committee the winter meeting for next year was unanimously decided upon.

Winter meetings do not readily lend themselves to excursions. The time must be taken up in the reading and discussion of papers, and the social element must come in the form of banquets and smokers. St. Louis did all in its power to entertain the convention, and several excursions were arranged, notwithstanding the unfavorable season.

#### AFFILIATED SOCIETIES.

The following affiliated societies held

meetings in conjunction with the association:

- The American Anthropological Association.
- The American Chemical Society.
- The American Mathematical Society (Chicago Section).
- The American Microscopical Society.
- The American Physical Society.
- The American Psychological Association.
- The American Society of Naturalists.
- The American Society of Zoologists (Central Branch).
- The Association of Economic Entomologists.
- The Association of Plant and Animal Breeders.
- The Astronomical and Astrophysical Society of America.
- The Botanical Club of the Association.
- The Botanical Society of America.
- The Central Botanists' Association.
- The Entomological Club of the Association.
- The Fern Chapter.
- The Geological Society of America.
- The Sigma Xi Honorary Scientific Society.
- The Society for Horticultural Science.
- The Society for the Promotion of Agricultural Science.
- The Wild Flower Preservation Society of America.

The policy of encouraging the affiliation of scientific societies with this association has been continued, and two more societies, the Society of College Teachers of Education and the Society for Horticultural Science, have been added to the list. Some of the strongest of the affiliated societies have not sought any connection with this association. It would seem that an earnest effort should be made to bring about some connection between these organizations and our own. 'In union there is strength.' The scientific forces of the country should stand together, and whenever it comes that assistance is needed for scientific research, or favorable legislation is needed for any purpose, it will be obtained much more readily if it is known that practically all the scientists of the country are back of the association which asks for such action.

The first session of the meeting was called

to order in the auditorium of the Central High School, at 10 A.M., Monday, December 28, 1903, by the retiring president, Dr. Ira Remsen.

Dr. Remsen introduced the president-elect, Dr. Carroll D. Wright. Addresses of welcome were then made by the Hon. D. R. Francis on behalf of the local committee, by the Hon. C. P. Walbridge on behalf of the city of St. Louis, and by Professor C. M. Woodward on behalf of the educational institutions of the city and the state. To these addresses President Wright replied for the association.

President Wright announced that each day the council would meet at nine o'clock and the general session at ten o'clock.

After the adjournment of the general session the several sections were organized in their respective rooms.

On Monday afternoon the vice-presidents' addresses were given as follows:

At 2:30 P.M.

Vice-President Halsted before the Section of Mathematics and Astronomy, in Room B2, entitled 'The Message of Non-Euclidean Geometry.'

Vice-President Baskerville before the Section of Chemistry, in Room 102, entitled 'The Elements: Verified and Unverified.'

Vice-President Davis before the Section of Geology, in Room 202, entitled 'Geography in the United States.'

At 4:00 P.M.

Vice-President Waldo before the Section of Mechanical Science and Engineering, in Room 310.

Vice-President Hargitt before the Section of Zoology, in Room 202, entitled 'Some Unsolved Problems of Organic Adaptation.'

Vice-President Coville before the Section of Botany, in Room 102.

Vice-President Newcomb before the Section of Social and Economic Science, in the auditorium, entitled 'Some Recent Phases of the Labor Problem.'

The address of Vice-President Nichols before the Section of Physics was omitted, owing to the absence of Mr. Nichols, who was detained by sickness in his family.

On Monday evening the address of the retiring president, Dr. Ira Remsen, entitled

'Scientific Investigation and Progress,' was given at the Odeon.

On Tuesday evening, President David Starr Jordan, of Leland Stanford Junior University, gave a public lecture on 'The Resources of Our Seas.' After the lecture the American Society of Naturalists and affiliated societies held their annual smoker at the University Club.

On Wednesday morning Dr. George A. Dorsey delivered his address as retiring president of Section H, upon the subject 'The Future of the American Indian.'

On Wednesday afternoon the American Society of Naturalists held their annual public discussion, the subject being 'What Academic Degrees should be conferred for Scientific Work?'

On Wednesday afternoon Professor E. Rutherford, of McGill University, Montreal, Canada, gave an illustrated public lecture on the subject 'Radium and Radioactivity.'

On Wednesday evening the retiring president of the American Chemical Society, Dr. John H. Long, delivered an address upon the subject 'Some Problems in Fermentation.'

On Wednesday evening the American Society of Naturalists held its annual dinner at the Mercantile Club, after which was given the address of the retiring president, Professor William Trelease.

On Wednesday evening the annual dinner of the American Chemical Society and Section C was given at Faust's.

On Wednesday evening Dr. S. F. Emmons gave the president's address before the Geological Society of America at the Planters' Hotel.

On Thursday afternoon, by invitation of the officers of the Louisiana Purchase Exposition, the members of the association and affiliated societies visited the exposition grounds. A buffet luncheon was tendered the association by the officers of the exposi-

tion, after which they were taken in small parties through the grounds and buildings and shown the various exhibits, under the personal charge of the chiefs of departments.

On Thursday evening the annual banquet of the Sigma Xi Honorary Scientific Society was given at the Mercantile Club, followed by the address of President David Starr Jordan.

On Friday evening the members of the association attended the fourteenth annual banquet given by the trustees of the Missouri Botanical Garden at the Southern Hotel.

#### REPORTS OF COMMITTEES.

The following reports of committees were presented to the council. They were accepted and ordered printed.

##### *On the Atomic Weight of Thorium.*

*To the Council of the American Association for the Advancement of Science.*

*Gentlemen:* Since our last report we beg leave to state that Messrs. Charles Baskerville and R. O. E. Davis have secured further evidence of the complexity of the so-called element, thorium. This work has resulted from applications of methods of fractionation to the large amounts of purified material with which they were engaged, as stated in our last report. Under such circumstances these gentlemen deemed it advisable to prosecute further the fractionation until a stable thorium preparation was secured. This fractionation is controlled by atomic weight determinations and spectroscopic examinations.

At the Washington meeting of the council, a grant of fifty dollars was made Mr. Charles Baskerville for work on praseodidymium and the supervision of the same given over to this committee. Concerning this, we beg leave to state that Messrs. Baskerville, James Thorpe and T. B. Foust have secured about one kilogram of quite pure oxide by novel methods. At present Messrs. Baskerville and G. MacNider are subjecting a considerable portion of this purified material to a treatment which promises to show the complexity of this so-called element.

We therefore, beg leave to report progress.

Respectfully,

CHAS. BASKERVILLE, *Chairman*,  
FRANCIS P. VENABLE,  
JAS. LEWIS HOWE.

##### *On the Relation of Plants to Climate.*

*Gentlemen:* The committee on the relation of plants to climate presents herewith a paper entitled 'Soil Temperatures and Vegetation,' which sets forth recent results obtained by the aid of grants received in 1901 and 1902, and which was published in Contributions from the New York Botanical Garden (No. 44).

Your committee is desirous of extending the observations already made to cover a wider range of soil and climatic conditions, and has secured the cooperation of the New York Botanical Garden and of the Desert Botanical Laboratory of the Carnegie Institution, both of which have undertaken the purchase and installation of sets of instruments. The major inquiry is concerned with the influence of the temperature of soils, with its diurnal and seasonal variations, upon growth and distribution of plants. As a result of the observations already made it has been found that different portions of the body of even small plants may differ as much as 40° F. in temperature, a fact which has hitherto escaped notice and which promises to be of great importance in the interpretation of the physical processes of the plants. In order to carry along the entailed investigations, your committee asks an additional grant of seventy-five dollars.

During the course of the work, the Hallock soil thermograph has been invented and perfected. Specifications have been placed in the hands of a competent instrument maker, and no limitations of any kind placed on its manufacture or use. The numbers of applications for instruments show that it is deemed useful for thermometric work in various kinds of observations.

Respectfully,

D. T. MACDOUGAL,  
*For the Committee.*  
WILLIAM TRELEASE,  
J. M. COULTER,  
D. T. MACDOUGAL,  
*Committee.*

##### *On Anthropometric Tests.*

The committee of the association on anthropometric tests has continued its work throughout the year. A laboratory for physical and mental measurements was arranged at Washington, and tests of the fellows and members of the association were made by Mr. Miner and Mr. Davis under the direction of the chairman of the committee. The results of measurements of about one hundred fellows have been compiled and compared with similar measurements of members of the British Association and of other classes of the

community, but the data are not yet sufficiently numerous for publication. Dr. McGee, of the committee, has taken steps toward the establishment of anthropometric and psychometric laboratories as part of the Louisiana Purchase Exposition, with special reference to the measurement of the savage tribes that will be gathered there. Professor Boas, of the committee, has published measurements of the cephalic index in relation to Mendel's law, and has carried forward anthropometric work in other directions. The chairman of the committee has published two papers on the natural history of American men of science, seeking to apply metric methods to merit and other individual differences. Numerous measurements of physical and mental traits have been made in the psychological laboratory of Columbia University, and work has been carried on in the schools of New York City on the resemblance of brothers and twins, and in other directions. Professor Thorndike has published a book on 'Educational Psychology,' concerned especially with the application of anthropometric methods to children.

It did not appear feasible to arrange an anthropometric laboratory at St. Louis. We ask that the fifty dollars appropriated for such a laboratory be made available for next year.

J. McKEEN CATTELL,  
Chairman.

#### *On Indexing Chemical Literature.*

The committee on indexing chemical literature, appointed by your body at the Montreal meeting in 1882, respectfully presents to the Chemical Section its twenty-first annual report, covering the twelve months ending June 1, 1903.

#### *Works Published.*

'An Index to the Literature of Thorium (1817-1902).' By Cavalier H. Jouet, Ph.D. Smithsonian Miscellaneous Collections, No. 1374. Washington City, 1903.

'References to Capillarity to the End of the Year 1900.' By John Uri Lloyd (aided by Sigmund Waldbott). Bulletin No. 4 of the Lloyd Library of Botany, Pharmacy and Materia Medica. Cincinnati, Ohio, 1902. 8vo. 212 pp.

The 665 'references' extend from 1519 to 1900; each is accompanied by a summary of the contents of the paper cited.

*The Journal of the American Chemical Society.* General Index to the first twenty volumes, 1879-1898, and to the proceedings, 1877-1879. Easton, Pa., 1902. 8vo. 237 pp.

Though issued anonymously, the preface bears the initials of E. W. Morley and O. F. Tower, and

the labor was one of love. Accuracy of detail and adequate treatment on every page are its admirable features. Besides an index of authors and an index of subjects, there is an index of obituaries which is suggestive. Also an index of new books.

#### *Notes on Foreign Bibliographies.*

'A Bibliography of Steel-works Analysis,' by Harry Brearly, forms an appendix to the volume entitled 'The Analysis of Steel-works Materials,' by Harry Brearly and Fred Ibbotson. London, 1902.

This bibliography comprises 1,858 references, which occupy more than 130 pages octavo. The items are grouped under seven heads, besides minor subdivisions; the literature is, however, very incomplete, being confined to four British journals.

'A Catalogue of the Library of the Chemical Society (of London).' Arranged according to authors with a subject index. London, 1903. 8vo. 342 pp.

'International Catalogue of Scientific Literature.' First Annual Issue (for the year 1901). D, Chemistry. Published for the International Council by the Royal Society of London. London, 1902. Vol. II., Part I. June, 1902.

#### *Work in Progress.*

A second supplement to the 'Select Bibliography of Chemistry,' by Dr. H. Carrington Bolton, has been completed and accepted for publication by the Smithsonian Institution. It brings the literature down to the end of the year 1902.

An index to the literature of cadmium has been begun by Professor Ernest N. Pattee, of Syracuse University.

An index to the literature of glucinum has been begun by Professor Charles L. Parsons, of New Hampshire College, Durham, New Hampshire.

An index to the literature of germanium, gallium and indium has been begun by Dr. Philip E. Browning, of New Haven, Connecticut.

Mr. Frank R. Fraprie, writing from Munich, Bavaria, reports substantial progress on an index to the literature of lithium, caesium and rubidium.

Mr. Benton Dales is engaged on an index to the literature of the yttrium group of the rare earths. His address is Ithaca, New York.

H. CARRINGTON BOLTON (in Europe),  
F. W. CLARKE (in Europe),  
ALBERT B. PRESCOTT,  
ALFRED TUCKERMAN,  
H. W. WILEY,

*Committee.*

June 1, 1903.

*On the Velocity of Light.*

The committee reports progress since the Pittsburgh meeting in the preliminary study of the methods of determining the group velocity and the absolute velocity of light in ponderable media and in space.

The practicability of the method, involving the use of electric double refraction and electric oscillations for producing groups of waves, and the examination of them through a column of water at least 100 feet long and probably twice that distance, has been established.

An estimate from the corresponding optical conditions in air would make the available distance several miles. The preliminary study of the method for determining the absolute velocity has not yet been completed, but the apparatus is partly mounted and in place.

The committee petitions a further grant of seventy-five dollars for the continuance of the preliminary experiments now in progress.

Respectfully submitted,

D. B. BRACE,  
*For the Committee.*

*On the Teaching of Anthropology in America.*

*To the President and Council:* Your committee on the teaching of anthropology in America beg to report progress.

During the year 1902 (for which a brief report was submitted to the council, though apparently lost before reaching the secretary of the council), the committee held one or two conferences, while different members took individual action in accordance with the general policy looking toward the promotion of anthropologic education in several leading institutions. Dr. MacCurdy, of the committee, continued the collection and publication of statistics as to the teaching of anthropology; and Dr. Boas, Dr. Russell and the chairman of the committee delivered addresses and published papers advocating the extension and betterment of anthropologic teaching in this country. During the year 1903 the committee have continued work, chiefly as individuals, and different members have been consulted and have expressed opinions as to the value of anthropology as a subject of instruction in educational institutions. Recently the committee has suffered a grievous loss in the death of Dr. Frank Russell, one of the original members of the committee.

It is recommended that the committee be continued, and that the vacancy created by the death of Dr. Russell be filled by the appointment of Dr. Roland B. Dixon, of Harvard University. Since

the work of the committee is performed in occasional conferences and by correspondence, entailing little expense, no grant is asked for its maintenance.

Respectfully,

W J MCGEE, *Chairman.*

GEORGE GRANT MACCURDY.

*On Grants.*

The committee on grants recommends that appropriations for the ensuing year be made as follows, namely:

To the Concilium Bibliographicum of Zurich, \$100.

To the Committee on the Atomic Weight of Thorium, \$100.

To the Committee on the Study of the Relations of Plants to Climate, \$75.

To the Committee on Determination of the Velocity of Light, \$75.

To a committee of Section C, to be appointed, to study certain problems in electrochemistry, \$60.

To give effect to this last recommendation, the following resolution is suggested:

*Resolved,* That a committee consisting of Professors W. D. Bancroft, Edgar F. Smith and L. Kahlenberg be appointed to conduct said investigations in electrochemistry and that this committee be designated the Committee on Electrochemistry.

*On Policy of the Association.*

The Committee on Policy of the Association reported the following resolutions, which were adopted.

1. Concerning the proposition to authorize the appointment of an executive committee of five to consult with the permanent secretary and arrange details of the meetings, that the functions of such proposed executive committee be performed by the Committee on the Policy of the Association.

2. The Committee on the Policy of the Association recommend to the council that at the next annual meeting only three general sessions be held, namely, those of Monday, Wednesday and Friday of the week of meeting.

3. Amend Article 34 by the omission of the words 'on the election of any member as a fellow an additional fee of two dollars shall be paid.'

4. That the commutation of secretaries of sections be fixed at \$30 for each meeting of the association, provided that these secretaries lodge during the whole meeting at the hotel headquarters of the association.

In regard to granting credentials to members of the association who wish to visit foreign associations, the committee recommended that all such applications be referred to the Committee on Policy, with power.

In regard to the application of the Society of College Teachers of Education and of the Society for Horticultural Science for affiliation with this association, the committee recommended that the applications be granted.

*On the Relations of the Journal Science with the Association.*

On the recommendation of the committee it was voted:

1. That the treasurer be added to this committee.

2. That the vice-presidents of the association and the permanent secretary be added to the editorial committee of the journal, SCIENCE.

*On Amendments.*

The following amendments to the constitution having been proposed at the Washington meeting, favorably acted upon by the council and reported to the general session were adopted:

Article 34, second line, change the word *assessment* to the word *dues*.

Article 35, first line, change the word *assessment* to the word *dues*.

Article 37, first line, change the word *assessment* to the word *dues*.

*On Fellows*

The following members were elected fellows of the association: Edward Goodrich Acheson, Victor C. Alderson, J. M. Allen, Frank Marion Andrews, Henry Prentiss Armsby, B. J. Arnold, Luigi d'Auria, Oscar Phelps Austin, Thomas M. Balliet, J. H. Barr, John Mallery Bates, Albert T. Bell, W. Z. Bennett, William B. Bentley, Bernard Arthur Behrend, Samuel Lawrence Bigelow, Charles Edward Brewer, W. K. Brooks, David I. Bushnell, Jr., Sidney Calvert, William E. Castle, Hubert Lyman Clark, Frederic Edward Clements, George E. Coghill, James Milnor Coit, Charles A. Conant, Robert A. Cooley, Henry Crew, William Crozier, Richard Sydney Curtiss, N. M. Fenneman, George Egbert Fisher, Moses Gomberg, Benjamin Feland Groat, Charles M. Hall, Fred DeForest Heald, George Grout Hedgcock, J. S. Hine, Frederick W. Hodge, S. J. Holmes, William Hoskins, Ira Woods Howerth, William James, John Black Johnston, Edwin S. Johnnott, Edward Kasner, Edward Keller, C. A. King, J. S. Kingsley, Martin A. Knapp, Charles M. Knight, Jesse Goad Land, A. S. Langsdorf, F. M. Leavitt, Felix Lengfeld, Victor Lenher, P. M. Lincoln, G. W. Littlehales, George Edwin McLean, Haven Metcalf, Robert Treat Paine, Charles J. Reed, Jacob Reighard,

James Ford Rhodes, Isaac W. Riley, Samuel P. Sadtler, E. Dwight Sanderson, Homer LeRoy Shantz, John Lewis Sheldon, Bohumil Shimek, Edward Randolph Taylor, J. Bishop Tingle, Olin F. Tower, J. L. Van Ornum, F. L. O. Wadsworth, S. W. Williston and A. N. Winchell.

The following resolutions were proposed and adopted at the meeting of the general session held Friday, January 1:

In view of the extremely complete and effective arrangements which have guarded and guided the conduct of the multiplied activities of the meeting with such unusual success, and in the thought of the many courtesies which have been extended to us on every hand with most genuine hospitality, it is a peculiar pleasure to be called upon to present for adoption by the association the resolution of thanks which are so incomplete an expression of our appreciation of these privileges. At the same time, each one of us must feel that the most extended enumeration would only partially include the many who have so generously contributed to make this meeting a success in every direction.

First of all, the thanks of the association must be extended to the local committee, and particularly to the honorary president, the Hon. David R. Francis; to the chairman, Professor William Trelease; to the secretary, Professor A. S. Langsdorf; to the treasurer, Mr. William H. Thomson, and to the members of the executive committee, Chancellor W. S. Chaplin, Mr. George H. Morgan, Professor F. E. Nipher, Mr. John Schroers, Mr. Walter B. Stevens, Dr. William Taussig and Mr. H. C. Townsend, who, as chairman of the various subcommittees, have arranged for all the details with such forethought as to keep the machinery of a large and complicated program in operation without friction or interference, and to provide for many outside courtesies of the most enjoyable type.

Sincere thanks are due to the Board of Education for placing at our disposal the Central High School building, so admirably adapted to the purposes of this meeting; to Superintendent of Public Instruction F. S. Soldan; to Principal W. J. S. Bryan and his corps of assistants and students for their untiring efforts in caring for the various sections, and to Messrs. George F. Knox, William Butler and S. A. Douglas for their continued oversight and manipulation of the lanterns and other appliances placed at the disposal of the sections.

The association is deeply indebted to the trustees and director of the Missouri Botanical Gardens



for hospitalities extended to members in connection with their visits to this splendid institution, and for the exceptional courtesies tendered in connection with the Shaw banquet.

The association is under obligations to the officers of the Louisiana Purchase Exposition for the luncheon and reception at the grounds of the exposition, and to the chiefs of departments under whose guidance the members were privileged to witness the progress already made toward the completion of this monumental work.

The association must further acknowledge its indebtedness to the press, to the St. Louis Transit Company, to the president of the Board of Public Improvements and to all other organizations, corporations and individuals who have extended so many privileges to members individually and in groups in connection with visiting the great industries and points of interest in St. Louis and vicinity.

The association is under deep obligations to the Mercantile Club, to the University Club, and finally and in especial measure, to the Wednesday Club for the thoughtful hospitalities extended to the ladies registered at the meeting.

It was unanimously voted to extend the thanks of the association to Professor Rutherford for his lecture on radium and radio-activity.

At the meeting of the general committee, held Thursday evening, it was decided to hold the next meeting in Philadelphia, beginning Tuesday, December 27, 1904, and closing Monday, January 2, 1905, it being understood that the Executive Committee of the Council will meet Tuesday, December 27, and the opening session of the meeting will be held Wednesday, December 28. New Orleans was recommended as the place of meeting two years hence.

The following officers were elected for the Philadelphia meeting:

*President*—W. G. Farlow, Cambridge, Mass.

*Vice-Presidents:*

Section A—Alexander Ziwet, Ann Arbor, Michigan.

Section B—William F. Magie, Princeton, New Jersey.

Section C—Leonard P. Kinnecutt, Worcester, Massachusetts.

Section D—David S. Jacobus, Hoboken, New Jersey.

Section E—Eugene A. Smith, University, Alabama.

Section F—C. Hart Merriam, Washington, D. C.

Section G—B. L. Robinson, Cambridge, Mass.

Section H—Walter Hough, Washington, D. C.

Section I—Martin A. Knapp, Washington, D. C.

Section K—The present vice-president, Mr. H. P. Bowditch, will serve another year.

*General Secretary*—Charles S. Howe, Cleveland, Ohio.

*Secretary of the Council*—Clarence A. Waldo, Lafayette, Indiana.

CHARLES S. HOWE,  
*General Secretary.*

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THE ELEMENTS: VERIFIED AND  
UNVERIFIED.\*

It is the sad duty of the retiring chairman of this section to chronicle the death of two members. One of them, James Francis Magee, B.S., University of Pennsylvania, 1887, devoted his life chiefly to commercial pursuits, in which he was most successful. He joined the association at the fifty-first meeting, being one of the youngest members. The other was H. Carrington Bolton, Columbia, 1862 (Ph.D. Göttingen, 1865), who, with the exception of four (Gibbs, Boye, Brush and Hilgard), was the senior of the section, having joined at the seventeenth meeting. I beg permission to quote from an article of his in the *American Chemist*, 1876, the year following his elevation to fellowship in the association, as it exemplified in telling words one of the great aims in his life, with the fruitful accomplishment of which you are familiar:

"So rapid are the strides made by science in this progressive age and so boundless is its range, that those who view its career from without find great difficulty in following its diverse and intricate pathways, while those who have secured a foot-

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\* Address of the vice-president and chairman of Section C, Chemistry, of the American Association for the Advancement of Science, St. Louis meeting, December 28, 1903.